

Claim

1           1.       (original) A flexible circuit comprising:  
2                   a substrate having a plane;  
3                   a flexible and extensible structure formed within said substrate and co-planar  
4 with said substrate; and  
5                   wherein said structure is adapted to be extended out of said plane by a distance  
6 greater than a maximum lateral dimension of said structure.

1           2.       (original) The flexible circuit according to Claim 1 further comprising a  
2 pathway formed on said structure.

1           3.       (original) The flexible circuit according to Claim 2, wherein said pathway is a  
2 capillary for transferring a fluid.

1           4.       (original) The flexible circuit according to Claim 2, wherein said pathway is  
2 an electrical lead for transferring an electronic signal.

1           5.       (original) The flexible circuit according to Claim 2, wherein said pathway is  
2 an electrical lead for transferring an electrical signal.

1           6.       (original) The flexible circuit according to Claim 2, wherein said pathway is  
2 an optical fiber for transferring an optical signal.

1           7.       (original) The flexible circuit according to Claim 6, wherein bending radii of  
2   said optical fiber are large enough to prevent substantial optical loss from said optical fiber.

1           8.       (original) The flexible circuit according to Claim 1, wherein said structure is a  
2   spiral.

1           9.       (original) The flexible circuit according to Claim 8, wherein said spiral is an  
2   Archimedes spiral.

1           10.      (original) The flexible circuit according to Claim 8, wherein said spiral is a  
2   parabolic spiral.

1           11.      (original) The flexible circuit according to Claim 8, wherein said spiral is a  
2   polygonal spiral.

1           12.      (original) The flexible circuit according to Claim 11, wherein said spiral is  
2   one of a square spiral, a triangular spiral, a pentagonal spiral and a hexagonal spiral.

1           13.      (original) The flexible circuit according to Claim 1, wherein said structure has  
2   geometric features selected from a group comprising spiral, bend, curve, twist, turn, curl,  
3   loop, u-turn and zig-zag.

1           14.     (original) The flexible circuit according to Claim 1, wherein said structure is  
2 defined by perforations.

1           15.     (original) The flexible circuit according to Claim 1, wherein said structure  
2 comprises a boss for receiving a force to extend said structure out of said plane.

1           16.     (original) The flexible circuit according to Claim 1 further comprising at least  
2 a first pathway and a second pathway.

1           17.     (original) A flexible circuit comprising:  
2                   a substrate having a plane;  
3                   a flexible and extensible structure formed within said substrate and co-planar  
4 with said substrate, said flexible and extensible structure is adapted to be extended out of said  
5 plane by a distance greater than a maximum lateral dimension of said structure; and  
6                   a pathway on said structure.

1           18.     (original) The flexible circuit according to Claim 17, wherein said pathway is  
2 a capillary for transferring a fluid.

1           19.     (original) The flexible circuit according to Claim 17, wherein said pathway is  
2 an electrical lead for transferring an electronic signal.

1           20.     (original) The flexible circuit according to Claim 17, wherein said pathway is  
2     an optical fiber for transferring an optical signal.

1           21.     (original) The flexible circuit according to Claim 20, wherein bending radii of  
2     said optical fiber are large enough to prevent substantial optical loss from said optical fiber.

1           22.     (original) The flexible circuit according to Claim 17, wherein said structure is  
2     a spiral.

1           23.     (original) The flexible circuit according to Claim 22, wherein said spiral is an  
2     Archimedes spiral.

1           24.     (original) The flexible circuit according to Claim 22, wherein said spiral is a  
2     parabolic spiral.

1           25.     (original) The flexible circuit according to Claim 22, wherein said spiral is a  
2     polygonal spiral.

1           26.     (original) The flexible circuit according to Claim 25, wherein said spiral is  
2     one of a square spiral, a triangular spiral, a pentagonal spiral and a hexagonal spiral.

1           27.     (original) The flexible circuit according to Claim 17, wherein said structure  
2     has geometric features selected from a group comprising spiral, bend, curve, twist, turn, curl,  
3     loop, u-turn and zig-zag.

1           28.     (original) The flexible circuit according to Claim 17, wherein said structure is  
2     defined by perforations.

1           29.     (original) The flexible circuit according to Claim 17 wherein said structure  
2     comprises a boss for receiving a force to extend said structure out of said plane.

1           30.     (original) The flexible circuit according to Claim 17 further comprising a  
2     second pathway on said structure.

1           31. – 36 (Canceled)